

**CLAIMS**

What is claimed is:

1. A method of generating an array having a reduced number of input/outputs, comprising the steps of:
  - 5 for each array row input/output, grouping at least one set of rows in which the set of rows is coupled to the array row input/output; and for each combination of the array row input/outputs, selectively coupling non-set rows to the array row input/outputs that comprise the combination;
  - 10 wherein at least a portion of a number of rows for the array is equal to the number of rows in each set of rows multiplied by the number of input/outputs coupled to the array row input/outputs plus the number of non-set rows coupled to the array input/output combinations.
- 15 2. The method according to claim 1, wherein each set of rows includes a first row and a second row and said method further comprises the step of positioning at least one passive element between the second row and the array row input/output.
- 20 3. The method according to claim 2, wherein the passive element is a diode.

4. The method according to claim 1, further comprising the step of positioning a passive element between each non-set row and each of the array row input/outputs that comprise the combination.

5 5. The method according to claim 4, wherein the passive element is a diode.

6. The method according to claim 1, wherein the array further has a number of keys, switches and columns and the keys are coupled to the  
10 switches, wherein the switches are coupled to the rows in the set of rows, the non-set rows and columns.

7. The method according to claim 6, further comprising the step of, in response to at least one of the keys being activated, selectively  
15 transitioning the rows in the set of rows and the non-set rows between low and high states and transitioning the columns between low and high input states to determine which key has been activated.

8. An array having a reduced number of input/outputs, comprising:
  - at least one column; and
  - at least one set of rows for each array row input/output, wherein
- 5 said set of rows are coupled to said array row input/outputs and a predetermined number of said array row input/outputs form combinations, wherein if non-set rows are added to the array, said non-set rows are coupled to the array row input/outputs that comprise said combinations;
  - wherein at least a portion of a number of rows for the array is
- 10 equal to the number of rows in each set of rows multiplied by the number of array row input/outputs plus the number of non-set rows coupled to the array row input/output combinations.

  

9. The array according to claim 8, wherein each said set of rows
- 15 includes a first row and a second row and the array further comprises at least one passive element positioned between said second row and said array row input/output.

  

10. The array according to claim 9, wherein said passive element is
- 20 a diode.

11. The array according to claim 1, further comprising a passive element positioned between each said non-set row and each of said array row input/outputs that comprise said combination.

12. The array according to claim 11, wherein said passive element  
is a diode.

5 13. The array according to claim 1, further comprising at least one  
switch, wherein said switches are associated with corresponding keys and  
said switches are coupled to said rows in said set of rows, said non-set rows  
and said columns.

10 14. The array according to claim 13, wherein said array is part of a  
system having a processor and said array input/outputs are coupled to said  
processor, wherein said processor, in response to at least one said key being  
activated, selectively transitions said rows in said set of rows and said non-set  
rows between low and high states and said columns between input low and  
15 high states to determine which said key has been activated.